

Photometric Test Report

Relevant Standards

- ☒ ANSI/IES LM-79-2019
- ☒ ANSI C82.77-2017

Prepared For

RAB Lighting Inc.

Address: 408 W 14th St New York, NY 10014

Prepared By

Dongguan New Testing Centre Co., Ltd.

Address: 3F No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

Prepare by:

Alan Wang

Engineer: Alan Wang

Date: 2025-07-22

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

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Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	1500		4392
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	155.2
		110	125	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		28.3
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	11.60
			277V	8.13
Power Factor (THD & PF – Section 4.3)	ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.993
			277V	0.967
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019	7 steps	5029±283	4992
		4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥80		83.6
Minimum R9 (Integrating Sphere – Section 4.1)	ANSI/IES LM-79:2019 CIE13.3-1995	≥0		12
Minimum Rf (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥70		84
Minimum Rg (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	≥89		95
IES Rcs,h1 (Integrating Sphere – Section 4.1)	ANSI/IES TM-30-18	-12%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	≥75%		74.1%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Standard	Premium	23.9
		N/A	<22	
Spacing Criterion (Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	0°-180°	1.0-2.0	1.20
		90°-270°	1.0-2.0	1.32
Input Voltage (V)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Cast		277.0
(Goniophotometer – Section 4.2)		Non-Worst Case		120.0
Input Current (A)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		0.106
(Goniophotometer – Section 4.2)		Non-Worst Case		0.231
Power (Input Wattage – W)				
(Goniophotometer – Section 4.2)	ANSI/IES LM-79:2019	Worst Case		28.3
(Goniophotometer – Section 4.2)		Non-Worst Case		27.5

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-07-19	SWISHFA1X4 @29W5000K	-	250715001-S1
2	Goniophotometer Test	2025-07-19	SWISHFA1X4 @29W5000K	-	250715001-S1
3	THD and PF Test	2025-07-19	SWISHFA1X4 @29W5000K	-	250715001-S1

Remark (If any):

1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

3.0 Product Description

Luminaire Description: Model No. SWISHFA1X4 @29W5000K, color tunable from 3500K, 4000K and 5000K.

Electrical Specification: 120-277Vac, 50/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	SWISHFA1X4 @29W5000K	Sample ID	250715001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

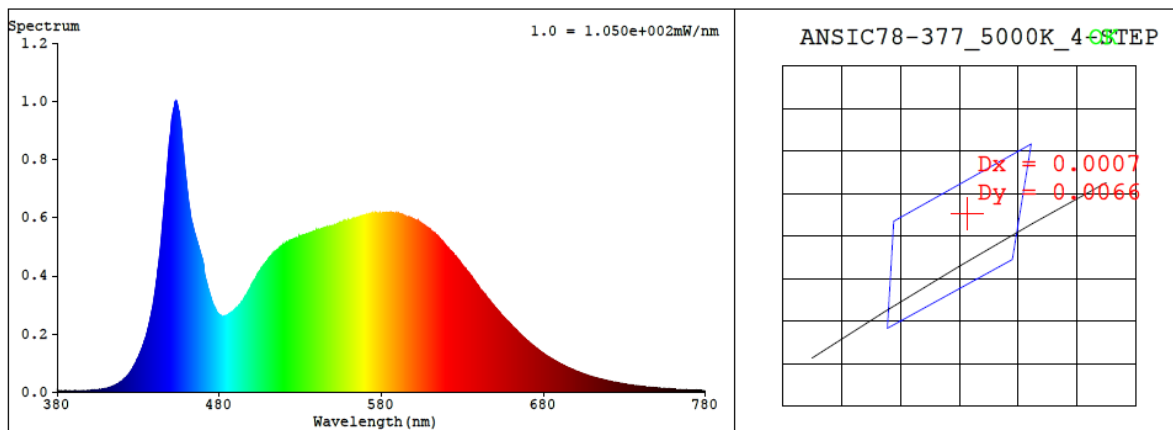
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.</p> <p>The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780nm.</p>

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.231	27.5	0.993
277.0	60	0.106	28.3	0.967

CCT (K)	CRI	R9	Duv	SDCM	Rf	Rg	IES Rcs,h1
4992	83.6	12	0.0030	1.4	84	95	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3461$ $y = 0.3585$ / $u' = 0.2094$ $v' = 0.4881$ ($duv=3.03e-03$)

CCT= 4992K Prcp WL: $L_d=570.1nm$ Purity=11.4%

Peak WL: $L_p=453nm$ FWHM: $=23.8nm$ Ratio:R=15.8% G=79.6% B=4.7%

Render Index: $R_a = 83.6$ AvgR = 76.6 TM30:Rf=84 Rg=95

EEL: 0.09076 A++ Highest

R1 =82 R2 =90 R3 =94 R4 =81 R5 =81 R6 =85 R7 =88

R8 =68 R9 =12 R10=75 R11=80 R12=56 R13=84 R14=97 R15=76

4.1 Integrating Sphere Test

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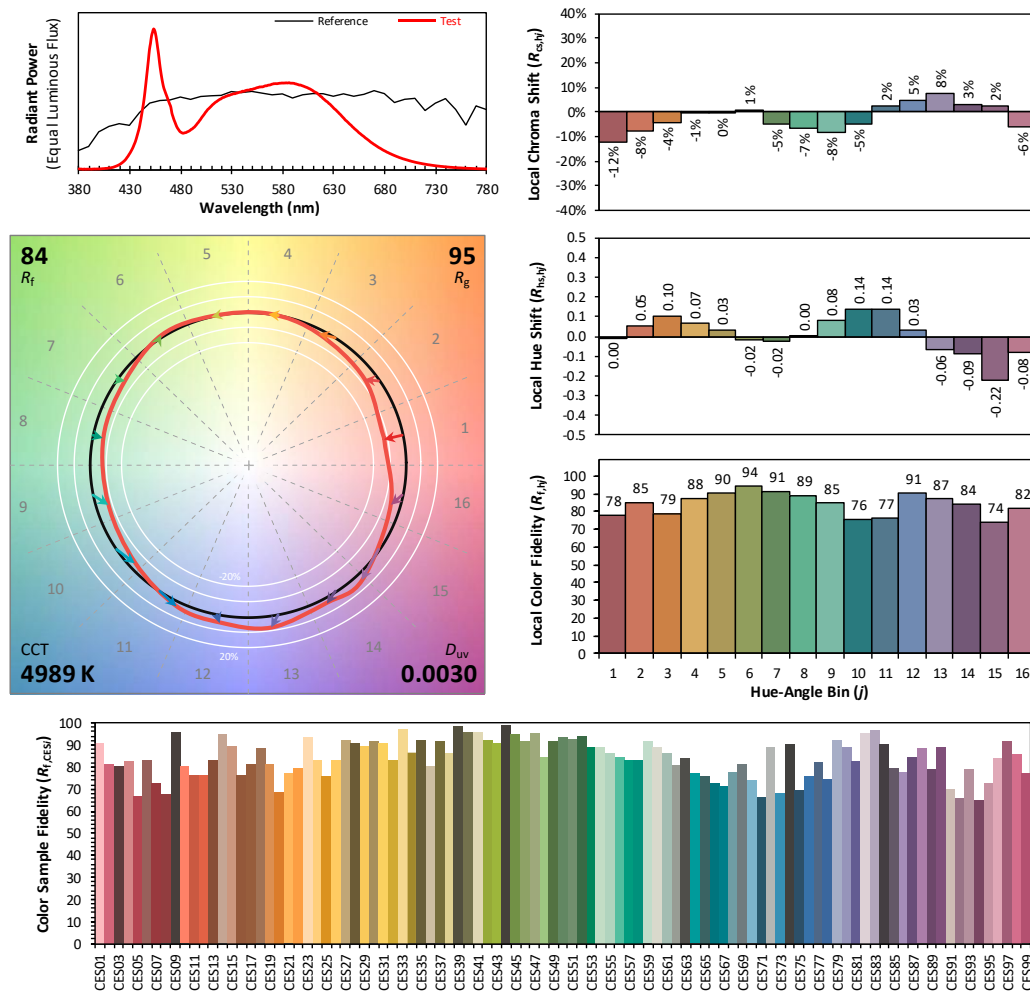
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/7/22

Model: SWISHFA1X4 @29W5000K



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3460
 y 0.3583
 u' 0.2095
 v' 0.4880

CIE 13.3-1995
(CRI)
 R_a 84
 R_g 11

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength											
WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)
380	6.70E-06	447	7.13E-04	514	4.81E-04	581	6.17E-04	648	3.06E-04	715	4.58E-05
381	5.30E-06	448	7.81E-04	515	4.85E-04	582	6.16E-04	649	3.00E-04	716	4.41E-05
382	5.40E-06	449	8.53E-04	516	4.91E-04	583	6.18E-04	650	2.93E-04	717	4.28E-05
383	4.40E-06	450	8.97E-04	517	4.95E-04	584	6.16E-04	651	2.86E-04	718	4.14E-05
384	3.50E-06	451	9.49E-04	518	5.01E-04	585	6.17E-04	652	2.80E-04	719	4.02E-05
385	5.30E-06	452	9.76E-04	519	5.03E-04	586	6.18E-04	653	2.74E-04	720	3.89E-05
386	4.10E-06	453	1.00E-03	520	5.09E-04	587	6.16E-04	654	2.66E-04	721	3.78E-05
387	4.10E-06	454	9.92E-04	521	5.13E-04	588	6.15E-04	655	2.60E-04	722	3.64E-05
388	4.60E-06	455	9.65E-04	522	5.15E-04	589	6.15E-04	656	2.55E-04	723	3.54E-05
389	4.40E-06	456	9.22E-04	523	5.18E-04	590	6.15E-04	657	2.48E-04	724	3.46E-05
390	4.40E-06	457	8.69E-04	524	5.22E-04	591	6.14E-04	658	2.43E-04	725	3.33E-05
391	5.10E-06	458	8.18E-04	525	5.24E-04	592	6.10E-04	659	2.38E-04	726	3.22E-05
392	3.80E-06	459	7.55E-04	526	5.27E-04	593	6.10E-04	660	2.32E-04	727	3.12E-05
393	5.00E-06	460	7.02E-04	527	5.28E-04	594	6.07E-04	661	2.25E-04	728	3.01E-05
394	5.00E-06	461	6.56E-04	528	5.31E-04	595	6.05E-04	662	2.20E-04	729	2.92E-05
395	6.00E-06	462	6.16E-04	529	5.34E-04	596	6.02E-04	663	2.15E-04	730	2.82E-05
396	5.30E-06	463	5.84E-04	530	5.36E-04	597	6.02E-04	664	2.09E-04	731	2.72E-05
397	5.60E-06	464	5.63E-04	531	5.39E-04	598	5.99E-04	665	2.03E-04	732	2.64E-05
398	5.80E-06	465	5.42E-04	532	5.41E-04	599	5.97E-04	666	1.97E-04	733	2.58E-05
399	5.90E-06	466	5.23E-04	533	5.40E-04	600	5.94E-04	667	1.92E-04	734	2.49E-05
400	5.90E-06	467	5.03E-04	534	5.44E-04	601	5.91E-04	668	1.87E-04	735	2.40E-05
401	6.90E-06	468	4.83E-04	535	5.45E-04	602	5.88E-04	669	1.81E-04	736	2.35E-05
402	7.10E-06	469	4.64E-04	536	5.48E-04	603	5.86E-04	670	1.77E-04	737	2.28E-05
403	7.90E-06	470	4.45E-04	537	5.50E-04	604	5.83E-04	671	1.72E-04	738	2.19E-05
404	8.20E-06	471	4.03E-04	538	5.52E-04	605	5.79E-04	672	1.68E-04	739	2.13E-05
405	8.90E-06	472	3.79E-04	539	5.53E-04	606	5.76E-04	673	1.63E-04	740	2.04E-05
406	9.90E-06	473	3.57E-04	540	5.58E-04	607	5.72E-04	674	1.58E-04	741	1.99E-05
407	1.00E-05	474	3.39E-04	541	5.58E-04	608	5.68E-04	675	1.54E-04	742	1.93E-05
408	1.13E-05	475	3.20E-04	542	5.58E-04	609	5.63E-04	676	1.50E-04	743	1.87E-05
409	1.20E-05	476	3.03E-04	543	5.62E-04	610	5.58E-04	677	1.45E-04	744	1.80E-05
410	1.29E-05	477	2.91E-04	544	5.64E-04	611	5.54E-04	678	1.41E-04	745	1.77E-05
411	1.40E-05	478	2.81E-04	545	5.66E-04	612	5.50E-04	679	1.37E-04	746	1.71E-05
412	1.58E-05	479	2.71E-04	546	5.66E-04	613	5.46E-04	680	1.33E-04	747	1.64E-05
413	1.71E-05	480	2.66E-04	547	5.67E-04	614	5.40E-04	681	1.29E-04	748	1.60E-05
414	1.95E-05	481	2.62E-04	548	5.70E-04	615	5.34E-04	682	1.25E-04	749	1.54E-05
415	2.22E-05	482	2.60E-04	549	5.71E-04	616	5.28E-04	683	1.22E-04	750	1.49E-05
416	2.49E-05	483	2.62E-04	550	5.71E-04	617	5.21E-04	684	1.18E-04	751	1.43E-05
417	2.77E-05	484	2.64E-04	551	5.75E-04	618	5.17E-04	685	1.15E-04	752	1.39E-05
418	3.11E-05	485	2.65E-04	552	5.76E-04	619	5.08E-04	686	1.12E-04	753	1.37E-05
419	3.47E-05	486	2.69E-04	553	5.79E-04	620	5.02E-04	687	1.08E-04	754	1.33E-05
420	3.87E-05	487	2.72E-04	554	5.82E-04	621	4.96E-04	688	1.05E-04	755	1.29E-05
421	4.37E-05	488	2.76E-04	555	5.84E-04	622	4.89E-04	689	1.02E-04	756	1.24E-05
422	4.90E-05	489	2.81E-04	556	5.85E-04	623	4.85E-04	690	9.91E-05	757	1.19E-05
423	5.47E-05	490	2.87E-04	557	5.89E-04	624	4.79E-04	691	9.60E-05	758	1.17E-05
424	6.11E-05	491	2.90E-04	558	5.88E-04	625	4.71E-04	692	9.31E-05	759	1.11E-05
425	6.79E-05	492	2.98E-04	559	5.89E-04	626	4.66E-04	693	9.05E-05	760	1.09E-05
426	7.66E-05	493	3.03E-04	560	5.89E-04	627	4.58E-04	694	8.72E-05	761	1.06E-05
427	8.73E-05	494	3.11E-04	561	5.92E-04	628	4.51E-04	695	8.49E-05	762	1.01E-05
428	9.67E-05	495	3.19E-04	562	5.95E-04	629	4.44E-04	696	8.24E-05	763	1.01E-05
429	1.09E-04	496	3.29E-04	563	5.97E-04	630	4.36E-04	697	7.97E-05	764	9.70E-06
430	1.20E-04	497	3.37E-04	564	5.97E-04	631	4.30E-04	698	7.71E-05	765	9.40E-06
431	1.33E-04	498	3.48E-04	565	6.00E-04	632	4.24E-04	699	7.55E-05	766	9.10E-06
432	1.46E-04	499	3.57E-04	566	6.01E-04	633	4.16E-04	700	7.29E-05	767	8.90E-06
433	1.61E-04	500	3.68E-04	567	6.02E-04	634	4.09E-04	701	7.10E-05	768	8.40E-06
434	1.79E-04	501	3.78E-04	568	6.04E-04	635	4.01E-04	702	6.88E-05	769	8.20E-06
435	1.97E-04	502	3.87E-04	569	6.08E-04	636	3.94E-04	703	6.67E-05	770	8.10E-06
436	2.19E-04	503	3.97E-04	570	6.09E-04	637	3.87E-04	704	6.43E-05	771	7.80E-06
437	2.44E-04	504	4.08E-04	571	6.12E-04	638	3.78E-04	705	6.26E-05	772	7.60E-06
438	2.70E-04	505	4.17E-04	572	6.11E-04	639	3.71E-04	706	6.03E-05	773	7.30E-06
439	2.97E-04	506	4.27E-04	573	6.12E-04	640	3.63E-04	707	5.85E-05	774	7.10E-06
440	3.35E-04	507	4.33E-04	574	6.11E-04	641	3.54E-04	708	5.69E-05	775	6.80E-06
441	3.76E-04	508	4.40E-04	575	6.13E-04	642	3.48E-04	709	5.47E-05	776	6.70E-06
442	4.21E-04	509	4.48E-04	576	6.14E-04	643	3.42E-04	710	5.31E-05	777	6.60E-06
443	4.64E-04	510	4.55E-04	577	6.15E-04	644	3.35E-04	711	5.15E-05	778	6.20E-06
444	5.18E-04	511	4.63E-04	578	6.15E-04	645	3.27E-04	712	4.99E-05	779	6.10E-06
445	5.80E-04	512	4.68E-04	579	6.17E-04	646	3.21E-04	713	4.85E-05	780	6.10E-06
446	6.47E-04	513	4.75E-04	580	6.16E-04	647	3.15E-04	714	4.69E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SWISHFA1X4 @29W5000K	Sample ID	250715001-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	43.1

Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^\circ\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.</p> <p>The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1.0° vertical intervals and 15° horizontal intervals.</p>

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.0	60	0.106	28.3	0.967
NON-WORST CASE	120.0	60	0.231	27.5	0.993

Test Result

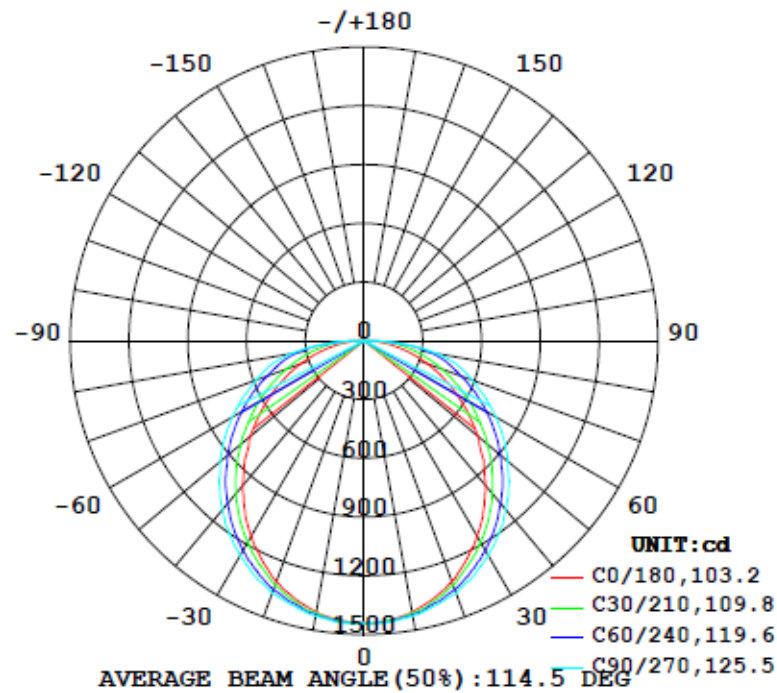
Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement
	C0-180	C90-270	C0-180	C90-270		(0° - 60°)
4392	162.2	173.0	103.1	125.6	155.2	74.1%

UGR		Spacing Criterion	
Crosswise	Endwise	(0° - 180°)	(90° - 270°)
20.7	23.9	1.20	1.32

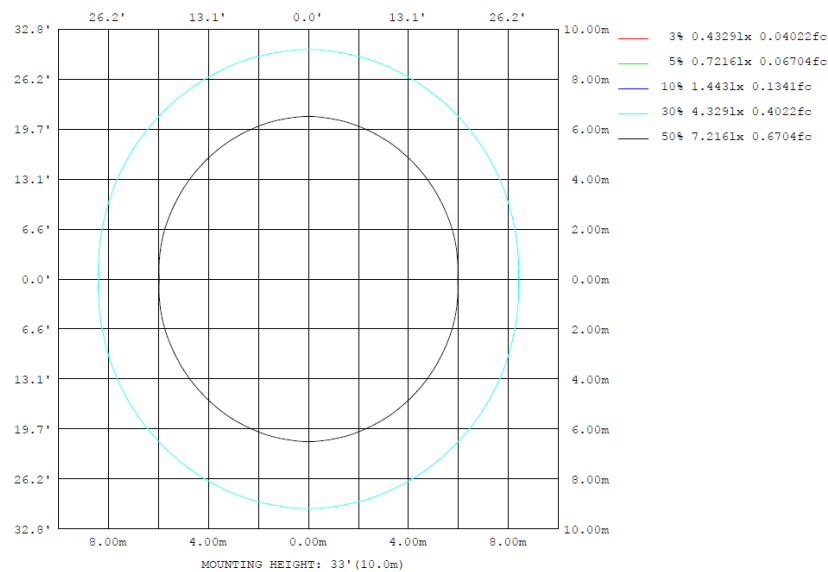
4.2 Goniophotometer Test

Lighting Distribution Curve

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1406	1417	1425	1417	1406	1417	1425	1417	0- 10	136.6	136.6	3.11, 3.11
20	1308	1341	1370	1341	1308	1341	1370	1341	10- 20	390.7	527.4	12, 12
30	1152	1212	1269	1212	1152	1212	1269	1212	20- 30	590.3	1118	25.4, 25.4
40	966.1	1050	1124	1050	966.1	1050	1124	1050	30- 40	710.0	1828	41.6, 41.6
50	760.5	864.6	959.5	864.6	760.5	864.6	959.5	864.6	40- 50	740.0	2568	58.5, 58.5
60	544.8	671.6	777.4	671.6	544.8	671.6	777.4	671.6	50- 60	685.9	3254	74.1, 74.1
70	344.4	478.5	588.2	478.5	344.4	478.5	588.2	478.5	60- 70	564.4	3818	86.9, 86.9
80	158.6	304.3	378.3	304.3	158.6	304.3	378.3	304.3	70- 80	402.9	4221	96.1, 96.1
90	0	0	0	0	0	0	0	0	80- 90	171.3	4392	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	4392	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4392	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4392	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4392	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4392	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4392	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4392	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4392	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4392	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	136.64	0-10	136.64	3.11%
10-20	390.71	0-20	527.35	12.01%
20-30	590.28	0-30	1117.63	25.45%
30-40	710.01	0-40	1827.64	41.61%
40-50	740.04	0-50	2567.68	58.46%
50-60	685.92	0-60	3253.60	74.08%
60-70	564.39	0-70	3817.99	86.93%
70-80	402.87	0-80	4220.86	96.10%
80-90	171.30	0-90	4392.16	100.00%
90-100	0.00	0-100	4392.16	100.00%
100-110	0.00	0-110	4392.16	100.00%
110-120	0.00	0-120	4392.16	100.00%
120-130	0.00	0-130	4392.16	100.00%
130-140	0.00	0-140	4392.16	100.00%
140-150	0.00	0-150	4392.16	100.00%
150-160	0.00	0-160	4392.16	100.00%
160-170	0.00	0-170	4392.16	100.00%
170-180	0.00	0-180	4392.16	100.00%

4.2 Goniophotometer Test

UGR – Uncorrected Table:

UGR TABLE - UNCORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	10.7	12.4	11.1	12.7	13.0	12.2	13.9	12.6	14.2	14.5
	3H	12.5	14.0	12.9	14.4	14.7	14.7	16.2	15.0	16.5	16.9
	4H	13.2	14.7	13.6	15.0	15.4	15.8	17.3	16.2	17.7	18.0
	6H	13.8	15.1	14.2	15.5	15.9	17.0	18.3	17.4	18.7	19.1
	8H	14.0	15.3	14.4	15.7	16.1	17.4	18.7	17.9	19.1	19.5
	12H	14.1	15.4	14.6	15.8	16.2	17.8	19.1	18.2	19.4	19.9
4H	2H	11.6	13.1	12.0	13.4	13.8	12.8	14.2	13.2	14.6	15.0
	3H	13.7	15.0	14.1	15.3	15.7	15.5	16.7	15.9	17.1	17.5
	4H	14.6	15.7	15.0	16.1	16.6	16.9	18.0	17.3	18.4	18.9
	6H	15.3	16.3	15.8	16.7	17.2	18.3	19.2	18.7	19.7	20.1
	8H	15.6	16.5	16.0	16.9	17.4	18.8	19.7	19.3	20.2	20.6
	12H	15.8	16.6	16.3	17.1	17.6	19.3	20.1	19.7	20.6	21.1
8H	4H	15.3	16.2	15.8	16.7	17.2	17.3	18.2	17.7	18.6	19.1
	6H	16.3	17.1	16.8	17.5	18.0	18.8	19.6	19.3	20.1	20.6
	8H	16.7	17.4	17.2	17.9	18.4	19.5	20.2	20.0	20.7	21.2
	12H	17.0	17.6	17.5	18.1	18.7	20.2	20.8	20.7	21.3	21.8
12H	4H	15.5	16.4	16.0	16.8	17.3	17.3	18.1	17.8	18.6	19.1
	6H	16.6	17.3	17.1	17.8	18.3	18.9	19.6	19.5	20.1	20.6
	8H	17.1	17.7	17.6	18.2	18.8	19.7	20.4	20.2	20.8	21.4

Maximum UGR = 21.8

UGR – Corrected Table:

UGR TABLE - CORRECTED

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	15.8	17.5	16.2	17.8	18.1	17.3	19.0	17.7	19.3	19.6
	3H	17.6	19.1	18.0	19.5	19.8	19.8	21.3	20.1	21.6	22.0
	4H	18.3	19.8	18.7	20.1	20.5	20.9	22.4	21.3	22.8	23.1
	6H	18.9	20.2	19.3	20.6	21.0	22.1	23.4	22.5	23.8	24.2
	8H	19.1	20.4	19.5	20.8	21.2	22.5	23.8	23.0	24.2	24.6
	12H	19.2	20.5	19.7	20.9	21.3	22.9	24.2	23.3	24.5	25.0
4H	2H	16.7	18.2	17.1	18.5	18.9	17.9	19.3	18.3	19.7	20.1
	3H	18.8	20.1	19.2	20.4	20.8	20.6	21.8	21.0	22.2	22.6
	4H	19.7	20.8	20.1	21.2	21.7	22.0	23.1	22.4	23.5	24.0
	6H	20.4	21.4	20.9	21.8	22.3	23.4	24.3	23.8	24.8	25.2
	8H	20.7	21.6	21.1	22.0	22.5	23.9	24.8	24.4	25.3	25.7
	12H	20.9	21.7	21.4	22.2	22.7	24.4	25.2	24.8	25.7	26.2
8H	4H	20.4	21.3	20.9	21.8	22.3	22.4	23.3	22.8	23.7	24.2
	6H	21.4	22.2	21.9	22.6	23.1	23.9	24.7	24.4	25.2	25.7
	8H	21.8	22.5	22.3	23.0	23.5	24.6	25.3	25.1	25.8	26.3
	12H	22.1	22.7	22.6	23.2	23.8	25.3	25.9	25.8	26.4	26.9
12H	4H	20.6	21.5	21.1	21.9	22.4	22.4	23.2	22.9	23.7	24.2
	6H	21.7	22.4	22.2	22.9	23.4	24.0	24.7	24.6	25.2	25.7
	8H	22.2	22.8	22.7	23.3	23.9	24.8	25.5	25.3	25.9	26.5

Maximum UGR = 26.9

4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1442	1445	1442	1445	1443	1440	1444	1440	1443	1445	1442	1445	1442	1445	1442	1445	1443	1440	1444
5	1434	1441	1434	1439	1441	1444	1441	1444	1441	1439	1434	1441	1434	1441	1434	1439	1441	1444	1441
10	1406	1417	1411	1417	1419	1426	1425	1426	1419	1417	1411	1417	1406	1417	1411	1417	1419	1426	1425
15	1364	1375	1374	1388	1387	1397	1398	1397	1387	1388	1374	1375	1364	1375	1374	1388	1387	1397	1398
20	1308	1321	1328	1341	1352	1360	1370	1360	1352	1341	1328	1321	1308	1321	1328	1341	1352	1360	1370
25	1236	1254	1262	1279	1296	1311	1323	1311	1296	1279	1262	1254	1236	1254	1262	1279	1296	1311	1323
30	1152	1174	1188	1212	1237	1252	1269	1252	1237	1212	1188	1174	1152	1174	1188	1212	1237	1252	1269
35	1062	1087	1110	1135	1164	1188	1199	1188	1164	1135	1110	1087	1062	1087	1110	1135	1164	1188	1199
40	966	985	1018	1050	1084	1112	1124	1112	1084	1050	1018	985	966	985	1018	1050	1084	1112	1124
45	864	886	924	957	1001	1033	1045	1033	1001	957	924	886	864	886	924	957	1001	1033	1045
50	761	786	820	865	908	942	960	942	908	865	820	786	761	786	820	865	908	942	960
55	649	684	720	770	816	851	871	851	816	770	720	684	649	684	720	770	816	851	871
60	545	578	620	672	718	757	777	757	718	672	620	578	545	578	620	672	718	757	777
65	444	476	520	574	626	663	681	663	626	574	520	476	444	476	520	574	626	663	681
70	344	375	421	478	527	569	588	569	527	478	421	375	344	375	421	478	527	569	588
75	249	279	329	386	442	485	500	485	442	386	329	279	249	279	329	386	442	485	500
80	159	188	241	304	345	368	378	368	345	304	241	188	159	188	241	304	345	368	378
85	74.3	107	154	184	199	205	206	205	199	184	154	107	74.3	107	154	184	199	205	206
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table--2

UNIT: cd

C (DEG) y (DEG)	285	300	315	330	345														
0	1440	1443	1445	1442	1445														
5	1444	1441	1439	1434	1441														
10	1426	1419	1417	1411	1417														
15	1397	1387	1388	1374	1375														
20	1360	1352	1341	1328	1321														
25	1311	1296	1279	1262	1254														
30	1252	1237	1212	1188	1174														
35	1188	1164	1135	1110	1087														
40	1112	1084	1050	1018	985														
45	1033	1001	957	924	886														
50	942	908	865	820	786														
55	851	816	770	720	684														
60	757	718	672	620	578														
65	663	626	574	520	476														
70	569	527	478	421	375														
75	485	442	386	329	279														
80	368	345	304	241	188														
85	205	199	184	154	107														
90	0.00	0.00	0.00	0.00	0.00														
95	0.00	0.00	0.00	0.00	0.00														
100	0.00	0.00	0.00	0.00	0.00														
105	0.00	0.00	0.00	0.00	0.00														
110	0.00	0.00	0.00	0.00	0.00														
115	0.00	0.00	0.00	0.00	0.00														
120	0.00	0.00	0.00	0.00	0.00														
125	0.00	0.00	0.00	0.00	0.00														
130	0.00	0.00	0.00	0.00	0.00														
135	0.00	0.00	0.00	0.00	0.00														
140	0.00	0.00	0.00	0.00	0.00														
145	0.00	0.00	0.00	0.00	0.00														
150	0.00	0.00	0.00	0.00	0.00														
155	0.00	0.00	0.00	0.00	0.00														
160	0.00	0.00	0.00	0.00	0.00														
165	0.00	0.00	0.00	0.00	0.00														
170	0.00	0.00	0.00	0.00	0.00														
175	0.00	0.00	0.00	0.00	0.00														
180	0.00	0.00	0.00	0.00	0.00														

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	SWISHFA1X4 @29W5000K	Sample ID	250715001-S1
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The samples were tested according to the and Ansi C82.77: 2002 and ANSI C82.77-10:2020</p> <p>The total harmonic distortion shall be measured to the 40th order.</p> <p>The ambient temperature shall be maintained at 25±1°C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion was calculated.</p>

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	iTHD(%)
120.0	60	0.231	27.5	0.993	11.60
277.0	60	0.106	28.3	0.967	8.13

5.0 Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2024-11-07	2025-11-06
NTC-F01-006	2.0 meter Integrating Sphere	2024-11-07	2025-11-06
NTC-F01-012	Standard Lamp	2024-10-28	2025-10-27
NTC-F01-013	Standard Lamp	2024-10-28	2025-10-27
NTC-F01-031	Digital Power Meter	2024-08-06	2025-08-05
NTC-F01-019	Temperature & Humidity Meter	2024-10-29	2025-10-28

*****End of Report*****